THE Lake Steward
Your source for lake news in King County

The Lake in My Backyard

Vol. 10, No. 4 Fall 2003

Cascade Middle School to Monitor Hicks Lake

Hicks Lake has become too urbanized to be restored to a naturally functioning lake, but nearly 100 students from nearby Cascade Middle School are working to make sure the lake becomes a pleasant place for the White Center community and for wildlife.

With eight drain pipes directing stormwater into little Hicks Lake (also know as Lake Garrett) and no outlet to give nutrients a way to leave, this White Center water body has been under siege from decades of pollution and abuse from nearby developments. However, that doesn't mean the water quality of the lake can't improve.

That's why the White Center students are helping King County monitor the three-acre lake located in Lakewood Park. Cascade is the first school to participate in the county's Lake Stewardship Program, which enlists volunteers to measure the water quality of King County's small lakes. Information supplied by the students will be considered in management plans to improve water quality and the ecosystem integrity of the small lake.

Hicks Lake hasn't been monitored in more than five years.

"This project is a real life situation that we can take into the classroom," said Marci Stadiem, Cascade Middle School science teacher. "The data is real. The students are working with real scientists. And collecting the data will show the students progress and teach them valuable skills. In monitoring a lake that's right in their own backyard, I believe our students will feel ownership for their own environment."

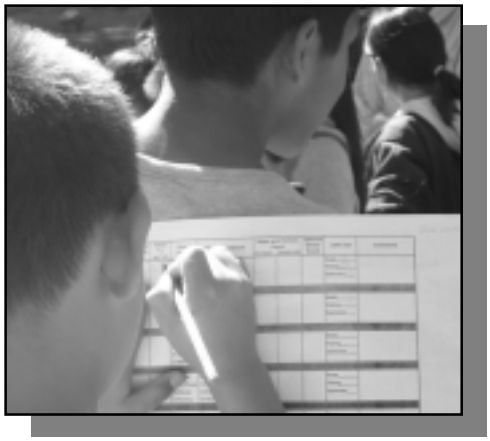
Along with heavy nutrient loads, there are other problems at Hicks Lake. During large storms, water levels rise quickly and flood Lakewood Park and its parking lot. The current pumps, designed to move lake water into a nearby sewer system, have not operated when they were most needed and are due to be replaced by a new system this fall. Invasive weeds, like Himalayan blackberry, have choked out native plants in shoreline areas, reducing wildlife habitat.

The students' work will enhance other ongoing projects to improve the lake and its shoreline. The

Continued on p. 5

Cascade students on Hicks Lake pier

Recent lake contents, removed by community volunteers



Students will collect and record lake data

Fall is the time to spot sockeye, chinook and coho salmon as they return to spawn. Check out King County's e-guide to salmon watching. **www.metrokc.gov**

Citizen Spotlight

Congratulations to Spring Lake's Earth Hero: Ted Barnes

Ted Barnes, was one of three Earth Heroes honored by King County Executive Ron Sims, at a ceremony on October 7, 2003, for his invaluable contributions to protecting and preserving King County's natural environment.

Six years ago, Ted Barnes moved to Spring Lake and he had no idea what would be in store for him as a new resident. Spring Lake is a 68-acre lake between Renton and Maple Valley in unincorporated King County. It maintains a rural character that is prized by residents and visitors alike. Roughly one third of the shoreline is King County natural land. Unfortunately, Spring Lake is infested with four species of noxious aquatic weeds listed on the Washington State Noxious Weed list. Learning that these weeds threatened not only the ecology of the lake, but also the recreational uses that make it such a popular spot for fishermen and nature lovers, Barnes took action.

Barnes has taken it upon himself to rid Spring Lake of noxious weeds and has established himself as an untiring environmental steward in the community. As a concerned resident and president of the Spring Lake Community Club, Barnes has spent countless hours of his own time organizing community members to control noxious weeds that threaten the integrity of the lake.

Barnes established a partnership between the Spring Lake Community Club, King County Department of Natural Resources and Parks and the Washington State Department of Ecology that has resulted in an Integrated Aquatic Vegetation Management Plan for the lake, a $67,000 grant from the Department of Ecology to control weeds and a multi-year noxious weed control effort that is currently underway.

Ted Barnes was named a King County Earth Hero by Executive Ron Sims

In addition, Barnes talked to nearly all Spring Lake community members to obtain permission for weed control on their lakeside properties and garnered overwhelming support for an increase in the community club dues to pay for lake improvement projects in perpetuity. (See *"Spring Lake Aquatic Weeds: Gone for Now,"* p. 3)

The King County Earth Legacy Initiative celebrates the importance of conserving and enhancing our natural environment.

To read more about Earth Heroes, go to http://www.metrokc.gov/earthlegacy/.

Ask Dr. Lakenstein

What *is* an Algae Bloom?

Dear Dr Lakenstein:
Somebody said our lake is "blooming." What exactly does that mean?
Signed,
Confused at Cottage Lake

Dear Confused:

People sometimes call a large increase in the amount of algae floating in lake water an "algae bloom," especially if the amounts decrease water transparency, make surface scums or streaks in the water, or create distinct odors. When this happens there is definitely something going on in the lake!

Generally, algae cells are produced by non-sexual (vegetative) division, fueled by appropriate water temperatures, available sunlight, and the right combination of nutrients necessary for growth.

Additionally, the movement of existing algae by winds or convection currents can concentrate the cells into a small area of the lake, making the population look much larger temporarily in that one spot.

Since the term "bloom" is not precisely defined, it can be confusing. What may seem like a slight increase to one person may be a bloom to another.

Algae bloom

King County at Work

Spring Lake Aquatic Weeds: Gone for Now

Teamwork and planning, more than herbicides, were the key factors in Spring Lake residents' successful battle with several noxious aquatic weeds this season.

Residents around Spring Lake (between Renton and Maple Valley), have been working tirelessly with King County staff to tackle an infestation of Eurasian watermilfoil.

The project began with the development of an Integrated Aquatic Vegetation Plan (IAVMP) to guide weed removal efforts. After approval from the Washington State Department of Ecology, the project plan was reviewed under the State Environmental Policy Act.

In July a liquid 2,4-D formulation specially designed for use in controlling aquatic weeds was applied. In August, other noxious weeds (fragrant water lily, purple loosestrife, and yellow iris) were treated with glyphosate, the active ingredient in Rodeo®. Emergent weeds and water lilies were treated a second time to ensure complete eradication for the season.

Meeting on Spring Lake

Community members followed up by clipping, collecting, and disposing of yellow iris seed pods that may have contained viable seeds.

The good news is that the targeted weeds are gone (or at least dead) for the season. The bad news is that they will be back next year.

Next season will begin with a diver survey of the lake to determine density and distribution of the weeds and the most sensible next steps: either additional herbicide application or hand removal efforts.

The goal is to completely eradicate target weeds by summer 2005, at which point the community will take responsibility for controlling recurrences and new infestations.

For more information about the Spring Lake Project, call Michael Murphy at 206-296-8008.

Knocking out Hydrilla

As many people in Maple Valley and Covington know, Pipe and Lucerne Lakes are infested with the tenacious, aquatic weed hydrilla, a hard-to-beat weed since it has several ways of reproducing.

Since this is the only known infestation of hydrilla in Washington, eradicating it before it spreads is critical. In Florida, over $11 million is spent annually to remove hydrilla to keep waterways navigable.

Like milfoil, hydrilla can reproduce by fragmentation, but the plant can also propagate through stolons (aboveground trailing shoots), turions, and tubers. The major obstacle in our local infestation is the tubers, which can lie dormant in the sediment for 3-4 years and are unaffected by herbicide until they sprout.

Herbicide and hand pulling are the two major control methods used, both of which have diminished hydrilla but not eradicated it.

This year, a new approach was used, modeled after successful eradication projects in California. Sonar PR, a slow release herbicide with the active ingredient fluridone, was applied to maintain a very low level of herbicide in the lake during the growing season to destroy hydrilla as it sprouted. Frequent snorkel and SCUBA surveys were done to monitor the method's effectiveness, with plants removed by hand pulling whenever possible.

Initial results of the new method are positive. The hydrilla located during surveys all showed signs of major damage. If the strategy continues to be successful, eradication may be a reality in the not so distant future.

Divers survey the lake and examine hydrilla for damage

For more information about the hydrilla project call Beth Cullen at 206-263-6242.

Resources for Lakeside Living

Understanding Shoreline Codes

Many of us count ourselves lucky to live among the abundant natural resources in the Northwest. A region lush with healthy forests, rivers, lakes, and all the creatures inhabiting them.

With these resources comes an added responsibility. To help minimize the potentially negative effects of humans living so close to wildlife habitat, King County has environmental regulations aimed at promoting a healthy coexistence.

These regulations can be particularly complicated for lakeside residents. Lakes fall under many different regulations, depending on their size, location and classification. There are lakes and rivers that are classified as Shorelines of the State, whose regulations are driven by the Growth Management Plan for King County. In addition, there are lakes regulated by water conservancy rules and rural or urban lakes that have still different regulations. There are lakes and ponds that are shallow and are considered wetlands in their entirety, and lakes that are within Federal Emergency Management Agency defined flood plains.

King County Zoning Code 21A.24 drives most of the Department of Development and Environmental Services (DDES) lakeside code enforcement cases. This chapter deals with environmentally sensitive areas and describes development standards for a long list of sensitive areas the county is responsible for protecting.

If you reside on a lake and plan to make changes to the property, research the regulations in effect for your particular lake before beginning your project.

Buffers exist around most lakes, ranging from 25 feet to 100 feet. Vegetation within those buffers cannot be disturbed without obtaining a clearing/grading permit. The only exception to this is regular and routine maintenance of existing landscaping that existed prior to the Sensitive Areas Ordinance (11/27/90) which is considered an "existing non-conforming use." In other words, landscaping that existed prior to the ordinance is fine, even though new construction of the same landscape could violate a code.

Placing fill or excavating within the buffers always requires permits and is not considered maintenance. Costs for sensitive areas, code enforcement driven permits are not cheap, with the minimum cost running more than $1,000. Costs increase with the size of the area being impacted. Plant restoration or mitigation is required for permitted work within sensitive areas, with the costs of replacement vegetation adding significantly to the owner's total bill. A financial guarantee (i.e. a bond) for the restoration costs and monitoring costs may also be required.

Information is available online, by phone or in person at the DDES office. DDES is located at 900 Oakesdale Avenue Southwest in Renton and on the Web at www.metrokc.gov/dde s.

Or call 206-296-6600 and inquiries will be responded to within 48 to 72 hours.

Shoreline Regulations Seminar 7:30 to 8:30 p.m. - Thursday, November 6

The King County Lake Stewardship Program invites you to attend a free shoreline regulations seminar on Thursday, November 6, 2003 from 7:30 - 8:30 p.m. at the Sammamish Library.

Learn about what permits you may need to build a dock, pull weeds or other shoreline altering activites from a shoreline planner with the King County Department of Development and Environmental Services.

Space is limited so registration is required. For more information, registration or directions call Katie Sauter Messick at 206-263-5086 or email katie.messick@metrokc.gov.

Proposed Updates to Land-Use Regulations

King County released the second public review draft of updates to its Critical Areas, Clearing and Grading, and Stormwater Ordinances on October 1, 2003. Public comments are being accepted through November 14, 2003.

For more information, go to www.metrokc.gov/dde s/cao or call 206-205-3888.

Lake Monitors Report

Lake Monitoring Data at Work

September 30 marked the end of the 2003 water year. In this year, about 100 volunteer lake monitors at 54 small lakes in western King County recorded observations, collected water samples, and kept their eyes focused on their lakes. The cumulative benefit of information they provide is immeasurable.

Their data is important because it provides a record of lake conditions painting a detailed picture of a lake's conditions for King County staff and other jurisdictions. The information illuminates subtle changes in lake ecology that might otherwise go undetected, or jump starts an effort to address a problem that might compromise ecological integrity and recreational uses.

This year, volunteer efforts have resulted in changes to monitoring protocol, supplemental sampling, community groups and agencies asking different questions about their lakes. Following are some examples of volunteer monitoring data at work.

Lake Langlois

Analysis of a volunteer's water sample collected from near the bottom of Lake Langlois (nearly 100 feet deep) indicated that the lake might be meromictic, meaning that the deepest water rarely or never mixes with water at shallower depths. County sampling confirmed this hypothesis. Consequently, the next profile samples were taken at shallower depths to get a better understanding of nutrient cycling in the water depths that support algae and thus directly impact water quality.

Lake Wilderness

Analysis of mid-depth water samples at Lake Wilderness showed high chlorophyll *a*, suggesting much higher amounts of algae than in near-surface water. This information led to additional monitoring to better understand algal distribution, which may be true of other lakes in King County as well.

Mirror Lake

When Mirror Lake's volunteer monitor learned about plans for a housing development nearby, he referenced lake data (much of which he collected) in a letter to the developer. The data on lake level changes in response to rain events allowed him to make a strong case for the developer to increase research into stormwater management at the development site.

County wide, monitors have reported unusual algae blooms, sudden lake level changes, and animal activity. Volunteers have reported unidentified aquatic plants that have resulted in eradication efforts. Any information that we receive from volunteers and concerned residents gives us a better understanding of the lakes.

To share something interesting or unusual about your lake, contact Michael Murphy at 206-296-8008 or michael.murphy@metrokc.gov.

Continued from cover...

Cascade Monitors

King County Water and Land Resources Division is moving the pumphouse and doubling the capacity of the pipes, which will significantly reduce flooding problems. King County Parks staff are working with White Center Community Alliance for Youth to remove invasive weeds and plant native species in the park.

Meanwhile, the students will collect physical data on a daily and weekly basis, including information on lake level, precipitation, secchi depth (clarity measurement), and temperature.

"By collecting this information, we can better understand how the lake works and how to protect it," said King County water quality planner Beth Cullen, who trained the students in how to monitor the lake. "We are excited to have Cascade Middle School aboard."

Beth Cullen (King Co.) and Marci Stadiem (Cascade Middle School)

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http://dnr.metrokc.gov/wlr/waterres/smlakes/

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Volunteers are the eyes and ears of King County lakes

The Lake Stewardship Program monitors the water quality of small lakes in King County. We empower citizens to act as stewards of their lakes and watersheds through education, volunteer opportunities, and technical assistance.

In this issue of The Lake Steward